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Arrhythmias

INTEGRATING THE ELECTRONIC HEALTH RECORD WITH A CARDIAC DEVICE REGISTRY ENHANCES OUTCOMES MEASURES

Poster Contributions
Poster Sessions, Expo North
Monday, March 11, 2013, 9:45 a.m.-10:30 a.m.

Session Title: Arrhythmias: Devices IV - Ethical and Economic Issues Related to Arrhythmia Devices
Abstract Category: 8. Arrhythmias: Devices
Presentation Number: 1277-33

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Background: A Cardiac Device Registry developed by a community based integrated healthcare system tracks patients, complications and implantable cardioverter-defibrillator (ICD) and pacemaker (PM) device performance. The purpose of this study was to describe the registered cohort of this registry and incidence of surgical outcomes associated with these procedures.

Methods: This is a retrospective analysis of prospectively collected data from 2007-2011 in 7 geographical regions. Device data for primary and replacement implant procedures is imported from device vendors, PaceArt, Apollo, National Cardiovascular Data Registry and integrated with an electronic health record (EHR) to create a comprehensive patient registry. The EHR is used to ascertain patient demographics, co-morbidities, mortality and diagnosis. Post-operative complications are identified using an electronic screening algorithms based on International Classification of Diseases (ICD 9 CM) coding. Suspected complications are reviewed in the EHR by clinical content experts and, if confirmed, outcomes are added to the registry database. Descriptive statistics are provided.

Results: There were 10,905 ICD implants: 7,050 initial, 3,855 replacement and 23,336 PM implants: 16,156 initial, 7,180 replacement registered during the study period. A higher proportion of devices were implanted in males: 73.6% (ICD), 55.1% (PM); patients > 55 years old: 75.9% (ICD), 93.2% (PM); and with body mass index <30: 62.7% (ICD), 70.5% (PM). Complication rates for tamponade, hematoma and pneumothorax were ≤ 0.3% (ICD), ≤ 0.5% (PM); mechanical device failures were 1.36% (ICD), 0.51% (PM); lead failures were 2.46% (ICD), 1.8% (PM). Superficial infection rates were < 0.01% for (ICD) and (PM); deep infection rates were 0.7% (ICD), 0.6% (PM).

Conclusions: Outcomes reported by the registry fill a gap in the current literature where most commonly reported outcomes are limited to inpatient acute complications or small patient cohorts. Integration of EHR with a cardiac device registry provides a robust platform for an integrated healthcare system to monitor long-term outcomes of patients with ICD or PM implants in a large community-based registry.